

# Denys B.

## Senior C++ Engineer with video experience

### SUMMARY

- Senior Software Engineer with over 11 years of experience in full-cycle product development with video experience. - Proficient in multiple programming languages including C++17, C#, Golang, Python, and SQL. - Skilled in test-driven and behavior-driven development, with a focus on desktop and client-server application development for Windows, Linux, and Mac OS. - Experienced in cloud application development using microservice architecture, Docker, AWS, Kubernetes, and SQL/NoSQL databases. - Strong knowledge of Windows internals and driver development, including WinAPI, IPC, RPC, ATL/COM, KMDF drivers, and system services. - Expertise in reverse engineering for Windows and Mac OS, using tools such as IDA Pro, WinDbg, and HEX editors. - Proficient in data protection using system built-in and third-party crypto libraries like OpenSSL.

### TECHNICAL SKILLS

<b>Main Technical Skills</b>	C++
<b>Programming Languages</b>	C, C#, C++, Go, Java, OpenCL, Python
<b>C++ Libraries and Tools</b>	ATL, tinyxml
<b>C++ Frameworks</b>	Boost C++
<b>.NET Platform</b>	.NET, Visual Basic .NET
<b>Databases &amp; Management Systems / ORM</b>	PostgreSQL, Redis, SQL
<b>Deployment, CI/CD &amp; Administration</b>	Active Directory
<b>SDK / API and Integrations</b>	Admission Webhooks, GraphQL, Swagger, TPM API, Windows API
<b>Scripting and Command Line Interfaces</b>	Bash, PowerShell
<b>Mail / Network Protocols / Data transfer</b>	cURL, GRPC, OpenSSL
<b>Virtualization, Containers and Orchestration</b>	Docker, Kubernetes
<b>Logging and Monitoring</b>	Prometheus
<b>File Systems, Storage</b>	Protobuf
<b>Third Party Tools / IDEs / SDK / Services</b>	Qt Framework

<b>Methodologies, Paradigms and Patterns</b>	RPC (Remote Procedure Call)
<b>Other Technical Skills</b>	ArangoQL, bird, C for KMDF, COM, Credential Provider, CUDA, Custom Resource Definition, DocumentDB (MongoDB), go-kit, go-nats, gtest, Hashicorp Consul, Hashicorp Consul & Vault, jsoncpp, KMDF, mhook, SystemD, WinRM

## WORK EXPERIENCE

### Senior Software Engineer, Clipboard protection hooks

**Duration:** 2023

**Summary:**

- Researching behavior of WinAPI that interacts with clipboard
- Implementing COM-server with clipboard protection functionality
- Implementing hooks DLL with clipboard protection functionality and monitoring features
- Investigating and solving problems with clipboard interaction for some specific application with non-standard clipboard

**Responsibilities:** Researcher, Developer

**Technologies:** C++17, mhook, WinAPI, ATL, COM

### Senior Software Engineer, Driver filter for Windows Registry redirection

**Duration:** 2022

**Summary:**

- Researching how to redirect registry keys for particular process to isolate it
- Implemented PoC that redirects registry calls for children of the target process

**Responsibilities:** Researcher, Developer

**Technologies:** C for KMDF, Windows Kernel API

### Senior Software Engineer, Antikeylogger solution in KMDF driver

**Duration:** 2021

**Summary:**

- Researching how to intercept keystrokes in kernel and deliver them to the target process in user mode
- Implemented PoC with interceptor driver and consumer DLL that should be injected to the protected process

**Responsibilities:** Researcher, Developer

**Technologies:** C for KMDF, Windows Kernel API

### Senior Software Engineer, Software defined network

**Duration:** 2020-2021

**Summary:**

- Creating network namespaces, interfaces, wireguard tunnels as systemd units



- Implemented parts of heavily loaded multithreaded system
- Making benchmarks
- Monitoring the network namespace resources and exporting to Prometheus

**Responsibilities:** Backend developer

**Technologies:** Go, bash, Docker, Prometheus, Systemd, bird

## Senior Software Engineer, Property management system

**Duration:** 2020

**Summary:**

- Creating architectures for microservices decomposed by managed data
- Implementing microservices with GRPC internal API using code generation tools
- Designing and implementing GraphQL interface for API-gateway using code generation tools
- Integrating US payment system
- Integrating tenant screening service

**Responsibilities:** Lead backend developer, Researcher

**Technologies:** Go, ArangoQL, bash, Docker, Kubernetes, GraphQL, GRPC (proto3)

## Senior Software Engineer, Software defined perimeter

**Duration:** 2019-2020

**Summary:**

- Separating the project on specific modules, creating architectures for each module and their interaction inside and outside the infrastructure
- Implementing SDP controller with Keycloak as default IDP
- Implementing user authorization and authentication with JWT on SDP controller
- Managing user access to internal and external resources using DAC logic
- Designing and implementing REST API using Swagger and golang code generation tools
- Integrating OKTA as external IDP

**Responsibilities:** Researcher, Backend developer

**Technologies:** Go, bash, Swagger, Redis, Hashicorp Consul

## Senior Software Engineer, Corporate identity provider based on microservices

**Duration:** 2019

**Summary:**

- Implementing interaction between services using REST API and NATS queue
- Implementing data analyzing aimed to protect privacy of logged in user
- Implementing fast and secure data sharing between services
- Migrating PostgreSQL tables to the new schemas

**Responsibilities:** Researcher, Dev manager, Backend developer

**Technologies:** Go, SQL, bash, Docker, Kubernetes, go-kit, go-nats, Redis, PostgreSQL, DocumentDB (MongoDB), Hashicorp Consul & Vault



## Senior Software Engineer, Kubernetes native policy engine

**Duration:** 2019

**Summary:**

- Researching the work of Kubernetes API server
- Implementing interaction with Kubernetes API server using k8s repo packages
- Implementing CRD with own controller
- Implementing validation and mutation admission webhooks in CRD controller
- Made cloud application stand-alone and self-tuning for work inside and outside the cluster

**Responsibilities:** Researcher, Dev manager, Developer

**Technologies:** Go, bash, Kubernetes, Custom Resource Definition, Admission Webhooks

## Senior Software Engineer, Highly available service by client's geolocation

**Duration:** 2018

**Summary:**

- Researching the concept for AWS
- Writing scripts and resource definitions for creating infrastructure in the cloud
- Calculating development and operation costs for AWS, Azure and Google Cloud

**Responsibilities:** Researcher, Developer

**Technologies:** Python, bash

## Senior Software Engineer, Autotest for RDP Server component

**Duration:** 2018

**Summary:**

- Implemented scripts that prepare and manage Windows and Linux machines on Hyper-V
- Implemented scripts for starting RDP connection from the Windows as server
- Implemented Autoresponder for the RDP client side to determine successful RDP connection
- Implemented tests management using
- csv file
- Implemented automated test deployment and launching using Bamboo

**Responsibilities:** Researcher, Single developer

**Technologies:** PowerShell, C#, bash, WinRM

## Senior Software Engineer, RDP Server component for custom authentication

**Duration:** 2018

**Summary:**

- Researching TPM, reversing Windows binaries for its support
- RDP virtual channel implementation
- Implementation of Credential Provider with custom Credentials
- Researching OS bugs and limitations
- Improving functionality and fixing bugs in PnP driver
- Implementing COM-server as Windows service
- Implementing interaction with Active Directory and Local System Authority from C# and C++ code



**Responsibilities:** Researcher, Developer

**Technologies:** C++, C#, PowerShell, bash, Credential Provider, COM, TPM API, Active Directory

## **Senior Software Engineer, Provisioning of VMs on VMWare vSphere and Hyper-V**

**Duration:** 2017-2018

**Summary:**

- Fixing bugs in windows services
- Implementing support of new version of VMWare vSphere in provisioning module
- Fixing bugs in PnP driver for USB-devices

**Responsibilities:** Developer

**Technologies:** C++, C, VB6, Java, COM, KMDF

## **Senior Software Engineer, Restoring damaged SQLite databases**

**Duration:** 2017

**Summary:**

- Researching SQLite database structure
- Fixing and improving legacy code
- Implemented parsing of all kinds of SQLite pages
- Benchmarking and improving performance

**Responsibilities:** Dev manager, Developer, Researcher

**Technologies:** C++

## **Senior Software Engineer, Cloud-based storage and analytic tool for personal sensitive data**

**Duration:** 2016-2017

**Summary:**

- Implemented Server's REST API for storing, processing and retrieving user data
- Implemented desktop client application with Qt for Windows and Mac OS
- Fixing urgent bugs on server's side

**Responsibilities:** Developer

**Technologies:** C++, C#, Python, .Net, boost, gtest, RPC, SQL

## **Senior Software Engineer, Forensic tool targeting mobile devices for Windows and Mac OS**

**Duration:** 2013-2016

**Summary:**

- Decomposing, refactoring, testing and documenting legacy code
- Implementing new features in obtaining and analyzing useful data
- Analyzing and improving performance
- Researching new abilities for the product using reverse engineering
- Separating functional parts of the product as separate sub-products in form of static and dynamic libraries with CLI



**Responsibilities:** Developer, Researcher, Acting Dev manager

**Technologies:** C++, C#, Python, Qt, boost, gtest, openssl, curl, CUDA, OpenCL, protobuf, tinyxml, jsoncpp

